

REMARKS

Applicants submit that the amendments herein are fully supported in the present specification as filed and add no new matter. Further, the amendments herein address issues that are first raised in the outstanding Office Action, and were not made earlier, because the first indication to Applicants that the present amendments would be needed was in that Office Action. Thus, entry of this reply is respectfully requested.

In the alternative, if the Examiner continues with the rejections of the present application, it is respectfully requested that the present Reply be entered for purposes of an Appeal. The Amendment reduces the issues on appeal by reducing the number of claims (e.g., claims 13-14 are canceled).

Applicants respectfully request the Examiner to reconsider the present application in view of the foregoing amendments to the claims and the following remarks.

Status of the Claims

In the present Amendment, claim 1 has been amended and claims 13 and 14 are canceled without prejudice or disclaimer of the subject matter contained therein. Also, claims 2-9 and 11-12 are withdrawn from consideration. This makes claims 1-12 as pending in the application.

No new matter has been added with the amendment to claim 1. The terms “60 to 90 mol%” and “10 to 40 mol%” in claim 1 have been amended to read “60 to 75 mol%” and “25 to 40 mol%,” respectively. Support for these amendments can be found at page 30, lines 17 to 23 of the present specification. Also, the value of “75°C” in claim 1 has been amended to read

“66.5°C,” wherein support for this amendment is found in Example 3 listed in Table 2 at page 170 of the specification. Also, Applicants also note the explanation below.

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims. Applicants' previous comments are rendered moot in view of new rejections (see paragraph 7 of the Office Action).

Specification

The specification is objected to as stated in paragraph 2 of the Office Action. Applicants respectfully traverse.

In the previous reply of April 9, 2007, Applicants amended the value of “69.0°C” at page 168, line 16 to “66.5 °C”. Applicants also stated that support for this value is found in Example 3 of Table 2.

Still, the Examiner has objected to the specification stating that melting point of “66.5°C” of Example 3 listed in Table 2 on page 170 is inconsistent with the melting point of “69.0°C” in the text at page 168, line 16. The basis for the Examiner's objection is that the Examiner believes that the data in the tables is **extracted from the text**; therefore, “69.0°C” in the original specification text should be the correct melting point. However, in preparing a patent specification, this is not necessarily true. Further, the term “69.0°C” described at page 168, line 16 of the specification as filed is based on a typographical error and should read “66.5°C” as explained in the April 9th response.

As further support of their position, Applicants have conducted additional experiments to confirm the correlation between the 1-butene content (mol%) in a propylene/1-butene random copolymer (“PBR”) and the melting point (°C) of the PBR as shown in the attached Figure (“Correlation between 1-Butene Content (mol%) and Melting Temperature (°C)”). In the attachment, the symbol of “O” shows existing data of Examples 1-3 of the present specification, the symbol of “Δ” shows data of additional experiments just conducted, and the symbol of “X” is the data point corresponding to the typographical error (i.e., 1-butene content: 28.0 mol% and M.P.: 69.0°C instead of 66.5°C in Example 3).

From a reading of the attached Figure, one of ordinary skill in the art understands that a straight-line relationship forms between the 1-butene content (mol%) and a melting point (°C) for the PBR. Further, only the data point of “X” deviates from this straight line. Thus, it is clear that this data point is an error and does not correspond to the PBR.

Accordingly, Applicants respectfully maintain that the temperature of “69.0°C” at page 168, line 16 of the specification is a typographical error, and should instead read “66.5°C.” Reconsideration and withdrawal of this objection are respectfully requested.

Issues under 35 U.S.C. § 112, First Paragraph

Claims 13-14 stand rejected under 35 U.S.C. § 112, first paragraph, for asserted lack of enablement (see paragraphs 3-4 of the Office Action). The disputed claims have been canceled, thereby rendering this rejection moot. Withdrawal of this rejection is respectfully requested.

Issues under 35 U.S.C. §§ 102(b)/ 103(a)

Claims 1-2 stand rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over EP 1 138 687 to Kawai *et al.* (hereinafter “Kawai ‘687”) (see paragraph 5 of the outstanding Office Action).

Also, claims 1, 10, 13 and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kawai *et al.* ‘687 (see paragraph 6 of the Office Action).

Reconsideration and allowance of all of the pending claims is respectfully requested based on the following remarks.

Applicants respectfully maintain that the cited Kawai *et al.* ‘687 reference fails to disclose or suggest a propylene/1-butene random copolymer having the melting point range and crystallization rate as instantly recited in claim 1. Furthermore, Applicants maintain that cited Kawai *et al.* ‘687 fails to disclose or suggest a propylene/1-butene random copolymer that has a melting point range as instantly claimed. Thus, the instant rejections are improper.

Still, in the Office Action, the Examiner acknowledges that Kawai ‘687 fails to disclose some of the claimed features (e.g., mol% of butene in copolymer), but states that such features are inherently found in the Kawai ‘687 copolymer. Further, the Examiner still insists that since Kawai ‘687 uses the same catalyst/metallocene complex, this reference makes the same copolymer as instantly claimed (see page 3, lines 9-18 of the Office Action). Applicants respectfully traverse.

Kawai *et al.* ‘687: The Rejection under 35 U.S.C. § 102(b)

In the Office Action, the Examiner refers Applicants to Example 38 in Kawai *et al.* ‘687 as disclosing a PBR as instantly claimed (see, e.g., page 3, lines 5+).

Kawai *et al.* '687 does disclose the preparation of propylene/butene copolymer in the presence of a metallocene catalyst, wherein the melting point is in the range of 73.6-108.1°C and intrinsic viscosity which is in the range of 0.89-3.56 dl/g (pages 237-238). However, Kawai *et al.* '687 fails to disclose a propylene/1-butene random copolymer having a melting point from 40°C to 66.5°C and a crystallization rate (1/2 crystallization time) at 45°C of 10 minutes or less as instantly recited in present claim 1. In fact, regarding Example 38 of Kawai *et al.* '687, this Example demonstrates the preparation of the copolymer having the lowest melting point of 73.6°C in the presence of a metallocene catalyst. Regarding this melting point of 73.6°C, and as can be seen from the attached Figure (discussed in the previous rejection above), the copolymer contains about 24 mol% of 1-butene (see the point represented by "Δ"). Thus, the recited Example 38 in Kawai *et al.* '687 falls outside the scope of present claim 1 (e.g., a melting point range of 40 to 66.5°C) and the present invention is novel over Kawai *et al.* '687. Thus, the rejection under § 102(b) is improper. *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Reconsideration and withdrawal of this rejection are respectfully requested.

The Rejections under 35 U.S.C. §103(a)

Regarding the rejections of claims 1-2, Applicants note that a *prima facie* case of obviousness requires disclosure of all claimed features. *See* M.P.E.P. § 2143. However, as explained above, Kawai *et al.* '687 fails to meet this requirement (e.g., Example 38 of the reference has a different melting point). Thus, the rejection of claims 1-2 has been overcome since a *prima facie* case of obviousness has not been established.

With respect to both § 103(a) rejections, Applicants provide the following additional comments showing how these rejections are improper.

An object of the present invention is to provide a propylene/1-butene random copolymer that has excellent flexibility, impact resistance, heat resistance and low temperature heat-sealability, and a polypropylene composite film that can be obtained with good moldability and has superior transparency, low-temperature heat-sealability, blocking resistance and mechanical strength such as scratch resistance (see page 12, lines 15-23 of the specification). In other words, the propylene/1-butene random copolymer of the present invention possesses a feature of a relatively short 1/2 crystallization time at a low-melting region, *i.e.*, a high crystallization rate at a low-melting region. Because of the above feature, a transparent film with low haze can be easily obtained without losing low temperature heat-sealability from the propylene/1-butene random copolymer of the present invention.

Even the advantages of the present invention have been experimentally confirmed. For instance, as exemplified by reviewing Inventive Example 3 and Comparative Example 3 as copolymers, and comparing Example 3b with Comparative Example 4b as a biaxially stretched film, Applicants note the following (see Table 2 bridging pages 170-171 and Table 5-1 and 5-2 bridging pages 177-178 of the specification):

	1-Butene Content (mol%)	Melting Point(°C)	1/2 Crystallization Time (min)
Example 3	28.0	66.5	5.2
Comparative Example 3	34.5	69.5	33.1

	Haze (%)	Heat-seal Strength (N/15mm) 65°C/70°C/80°C
Example 3b	13.9	0.3/3.1/3.3
Comparative Example 4b	25.9	0.3/2.9/3.5

Regarding this experimental data, Applicants note *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. A proper analysis under § 103(a) requires consideration of the four *Graham* factors, which does include evaluating any evidence of secondary considerations (e.g., commercial success; unexpected results). 383 U.S. at 17, 148 USPQ at 467. Regarding this *Graham* factor, Applicants respectfully submit that the present invention has achieved unexpected results, whereby such results rebut any asserted *prima facie* case of obviousness. As stated in M.P.E.P. § 2144.09 (see section entitled “*Prima Facie* Case Rebuttable By Evidence of Superior or Unexpected Results”), any rejection under 35 U.S.C. § 103(a) may be rebutted by a sufficient showing of unexpected results for the present invention. As explained above, Kawai *et al.* '687 does not disclose or suggest the above superior features or effects of the present invention. Thus, it is believed that both §103(a) rejections have been overcome.

Still, in paragraph 7 of the Office Action, the Examiner asserts that the copolymer of Comparative Example 3 is prepared in a different manner (e.g., Ziegler catalyst), which leads to a different product having different macrostructure, and thus does not represent the closest prior art example. In response, Applicants respectfully traverse in that the copolymer of Comparative Example 3 is prepared in the presence of metallocene catalyst as described: “The polymerization

was carried out in the same manner as Comparative Example 2" (see page 170, lines 4-5 of the specification) and "rac-dimethylsilylene-bis{1-(2-methyl-4-phenyl-1-indenyl)} zirconium dichloride were added [in Comparative Example 2]" (see page 169, lines 18-19 of the specification). Thus, though the copolymer of Comparative Example 1 is prepared in the presence of Ziegler catalyst, a metallocene catalyst is used.

Therefore, Applicants have provided suitable, comparative testing. Further, presently pending claim 1 is patentably distinct from Kawai *et al.* '687 as this reference fails to disclose all claimed features and unexpected results exist for the present invention.

Moreover, the above comments apply to presently pending claim 10 as well since this claim depends from claim 1.

Based on the above, Applicants respectfully request to Examiner to reconsider and withdraw the rejections under 35 U.S.C § 102(b) and § 103(a).

Conclusion

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Application No. 10/550,017
Art Unit 1713
Reply to Office Action of June 5, 2007

Docket No.: 1155-0286PUS1

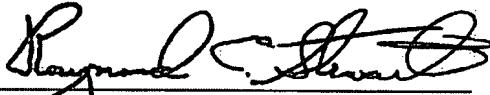
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated:
SEP - 5 2007

Respectfully submitted,

By _____


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Attachment: Figure: Correlation between 1-Butene Content (mol%) and Melting Temperature (°C)